

ORIGINAL ARTICLE**Development of a SYBR Green Multiplex Real Time PCR for Simultaneous Detection of *Mycobacterium Tuberculosis* and *Nocardia Asteroides* in Respiratory Samples****Safar Ali Alizadeh^{1*}, Amir Javadi², Jalal Mardaneh^{3,4}, Neda Nasirian⁵, Sajjad Alizadeh⁶, Maryam Mohammadbeigi⁷, Siamak Heidarzadeh⁸****OPEN ACCESS**

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ABSTRACT

BACKGROUND: *Nocardia asteroides* and *Mycobacterium tuberculosis* are worldwide-distributed bacteria. These infectious agents can cause many infections in humans, especially in immunocompromised individuals. Pulmonary infections are more common and have similar clinical symptoms. Proper diagnosis and treatment of these patients are important for accurate treatment and could be lifesaving.

METHODS: In this study, a multiplex real-time PCR assay was established for the simultaneous detection of the *N. asteroides* and *M. tuberculosis*. Both this homemade multiplex real time PCR and routine commercial tuberculosis tests were performed on 150 pulmonary specimens collected from individuals suspected to have tuberculosis.

RESULTS: From 150 specimens, 20 samples were acid fast positive, 14 positives for *M. tuberculosis* by singleplex real time PCR, 10 positives for *N. asteroides* by singleplex real time PCR and 2 positives for *M. tuberculosis* and *N. asteroides* by multiplex real time PCR whereas 14 samples were positive for *M. tuberculosis* with commercial test. Differential diagnosis of pulmonary tuberculosis is useful for their proper treatment.

CONCLUSION: Our test had good performance for differential diagnosis of tuberculosis and nocardiosis. Therefore, it is recommended to be used to diagnose such patients.

KEYWORDS: *Mycobacterium tuberculosis*, *Nocardia asteroides*, Respiratory samples